

FIG.1A

CGGGAGGAATATGCTGTGGAGCTCCTCTGCCATATAACAAAGAGGAATCTTTCAA 60

ACATGGCTGAAGCAAGACCCACTGGCTTGGAGCAGCCCTGTCTCTTATCCCTTTAATT 120

M A E A K T H W L G A A L S L I P L I F 20

TCCTCATCTCTGGGGCTGAAGCAGCTTCATTTTCAGAGAAACCAGCTGCTTCAGAAAGAAC 180

L I S G A E A A S F Q R N Q L L Q K E P 40

CAGACCTCAGGTTGGAAATGTCCAAAGTTTCCCAGTCCCTGAAATGATCAGGGCTTTGG 240

D L R L E N V Q K F P S P E M I R A L E 60

AGTACATAGAAACCCCTTTAAACGCACAAATGAAATAGTGGAGGAACAAATATACTCCTC 300

Y I E N P F K R T N E I V E E Q Y T P Q 80

AAAGCCTTGCTACATTGGAATCTGTCTTCCAAGAGCTGGGAAACTGACAGGACCAACA 360

S L A T L E S V F Q E L G K L T G P N N 100

ACCAGAAACGTGAGGATGATGAGGAGCAAAAACCTTATACGGATGATGAAGATGATA 420

Q K R E R M D E E Q K L Y T D D E D I 120

TCTACAAGGCTAATAACATTGCCCTATGAAGATGTGGTCTGGGGAGAGACTGGAACCCAG 480

Y K A N N I A Y E D V V G G E D W N P V 140

FIG.1B

TAGAGGAGAAATAGAGAGTCAAACCCAGGAAGAGGTGAGAGACAGCAAGAGAAATATAG 540
E E K I E S Q T Q E E V R D S K E N I G 160
GAAATAATGAACAAATCAACGATGAGATGAACGCTCAGGGCAGCTTGGCATCCAGGAAG 600
K N E Q I N D E M K R S G Q L G I Q E E 180
AAGATCTTCGGAAGAGAGTAAGACCAACTCTCAGATGATGTCCTCCAAGTAATTGCCT 660
D L R K E S K D Q L S D D V S K V I A Y 200
ATTGAAAAGGTTAGTAAATGCTGCAGGAAGTGGAGGTTACAGAAATGGGCAAAATGGGG 720
L K R L V N A A G S G R L Q N G Q N G E 220
AAAGGCCACCAGGCTTTTGAGAAACCTCTTGATTCTCAGTCTATTATCAGCTGATTG 780
R A T R L F E K P L D S Q S I Y Q L I E 240
AAATCTCAAGGAATTACAGATPACCCCAAGAACTTAATTGAGATGCTCAAAACTGGGG 840
I S R N L Q I P P E D L I E M L K T G E 260
AGAAGCCGAATGGATCAGTGGAACCGGAGCGGAGCTTGACCTTCCTGTTGACCTAGATG 900
K P N G S V E P E R E L D L P V D L D D 280
ACATCTCAGAGGCTGACTTAGACCATCCAGACCTGTTCCAAAATAGGATGCTCTCCAAGA 960
I S E A D L D H P D L F Q N R M L S K S 300

FIG.1C

GTGGCTACCCCTAAACACCTGGTCGCTGGGACTGAGGCCCTACCAGACGGGCTCAGTG 1020
 G Y P K T P G R A G T E A L P D G L S V 320
 TTGAGGATATTTTAAATCTTTTAGGGATGGAGAGTGCAGCAAAATCAGAAAACGTCGTATT 1080
 E D I L N L L G M E S A A N Q K T S Y F 340

TTCCCAATCCATATAACCAGGAGAAAGTTCTGCCAAGGCTCCCTTATGGTGCTGGAAGAT 1140
 P N P Y N Q E K V L P R L P Y G A G R S 360
 CTAGATCGAACGAGCTTCCCAAAGCTGCCCTGGATTCACATGTTGAAAAACAGACAGATGG 1200
 R S N Q L P K A A W I P H V E N R Q M A 380
 CATATGAAACCTGAACGACAAGGATCAAGAAATTAGGTGAGTACTTGGCCAGGATGCTAG 1260
 Y E N L N D K D Q E L G E Y L A R M L V 400
 TTAAATACCCCTGAGATCATTAATTCAAACCAAGTGAAGCGAGTTCCTGGTCAAGGCTCAT 1320
 K Y P E I I N S N Q V K R V P G Q G S S 420
 CTGAAGATGACCTGCAGGAAGAGGAACAAATTGAGCAGGCCCATCAAAGAGCATTTGAATC 1380
 E D D L Q E E E Q I E Q A I K E H L N Q 440

FIG.1D

AAGCAGCTCTCAGGAGACTGACAAGCTGGCCCCGGTGAGCAAAAGTTCCCTGTGGGC 1440
G S S Q E T D K L A P V S K R F P V G P 460
CCCCGAAGAAATGATATACCCCAAATAGGCAGTACTGGGATGAAGATCTGTTAATGAAAG 1500
P K N D D T P N R Q Y W D E D L L M K V 480
TGCTGGAATACCTCAATCAAGAAAGGCAGAAAGGAAGGAGCATATTGCTAAGAGAG 1560
L E Y L N Q E K A E K G R E H I A K R A 500
CAATGGAAATATGTAAAGCTGCTTTTCATTAATTACCCCTACTTTTCATTCCTCCACCCCAA 1620
M E N M * 504
GCAATCCCAACATTTCTCTTCAGTGTGTGACTTCTATCCTGTTAACACTGTAATATCT 1680
TTAAATGATGTACAGGCAGATGAAACCAGGTCACCTGGGGAGCTGCTTCATTTCCCTCTGA 1740
GCTGTATCTTGTGTATGGATATGTGTAAATGTTATGACTCCTTGATAAAAATTTATTA 1800
TGTCCATTATTCAAGAAAGATATCTATGACTGTGTTTAATAGTATATCTAATGGCTGTGG 1860

FIG.1E

CATTGTTGATGCTCACATATGATAAAAAAGTGCTCTATAATTCTATTGAAAAGTTTTTAAT 1920

ATTTATTGAATTATTTTGTACTGTCTGTAGCGTTTTGTGGAGTACTGGACCACAAAAAAT 1980

AAAGCATTATAAATATA 1997

FIG.2A

CGGGAGGAATATGCTGTGGAGCTCCTCTGCCATATAAACAAAAGAGGAAATCTTTCAA 60
 ACATGGCTGAAGCAAGACCCACTGGCTTGGAGCAGCCCTGTCTCTTATCCCTTTAATTT 120
 M A E A K T H W L G A A L S L I P L I F 20
 TCCTCATCTCTGGGGCTGAAGCAGCTTCATTTCAGAGAAACCAGCTGCTTCAGAAAGAAC 180
 L I S G A E A A S F Q R N Q L L Q K E P 40
 CAGACCTCAGGTTGGAAAATGTCCAAAAGTTTCCAGTCCTGAAATGATCAGGGCTTTGG 240
 D L R L E N V Q K F P S P E M I R A L E 60
 AGTACATAGAAAACCTCCGACAACAAGCTCATAGAAAGAAAGCTTAAGCACATGCAATT 300
 Y I E N L R Q Q A H K K E S L S T C N S 80
 CCTCCTATGTATGAAGAGAATTCCAGGGATAACCCCTTTAAACGCACAAATGAAATAGT 360
 L L C M K R I P G I T P L N A Q M K * 98
 GGAGGAACAATATACTCCTCAAAGCCTTGCTACATTGGGAATCTGTCTTCCAAGAGCTGGG 420
 GAAACTGACAGGACCACAAACCAAGAAACGTGAGAGGATGGATGAGGAGCAAAAACCTTA 480

FIG.2B

TACGGATGATGAAGATGATATCTACAAGGCTAATAACATTGCCCTATGAAGATGTGGTCGG 540

GGGAGAGACTGGAAACCCAGTAGAGGAGAGAAAATAGAGAGTCAAAACCCAGGAAGAGGTGAG 600

AGACAGCAAAGAGAAATATAGGAAAAAATGAACAAATCAACGATGAGATGAAACGCTCAGG 660

GCAGCTTGGCATCCAGGAAGAAGATCTTCGGAAAGAGAGTAAGACCAACTCTCAGATGA 720

TGTCTCAAAGTAATTGCCCTATTTGAAAAGGTTAGTAAATGCTGCAGGAAGTGGGAGGTT 780

ACAGAAATGGGCCAAAATGGGGAAAGGGCCACCAGGCTTTTGTGAGAAACCTCTTGATTCTCA 840

GTCTATTATCAGCTGATTGAAATCTCAAGGAATTACAGATACCCCCAGAAAGACTTAAT 900

TGAGATGCTCAAAACTGGGGAGAAAGCCGAATGGATCAGTGGGAACCGGAGCGGAGCTTGA 960

FIG.2C

CCTTCCTGTTGACCTAGATGACATCTCAGAGGCTGACTTAGACCATCCAGACCTGTTCCA 1020

AAATAGGATGCTCTCCAAGAGTGGCTACCCCTAAACACCTGGTCGTGGGACTGAGGC 1080

CCTACCAGACGGGCTCAGTGTTGAGGATATTTTAAATCTTTTAGGGATGGAGAGTGCAGC 1140

AAATCAGAAAACGTCGTATTTTCCCAATCCATATAACCAGGAGAAAGTTCTGCCAAGGCT 1200

CCCTTATGGTGCTGGAAGATCTAGATCGAACCAGCTTCCCAAAGCTGCCCTGGATTCCACA 1260

TGTTGAAAACAGACAGATGGCATATGAAAACCTGAACGACAAGGATCAAGAATTAGGTGA 1320

GTA CTGGCCAGGATGCTAGTTAAATACCCCTGAGATCATTAATTCAAACCAAGTGAAGCG 1380

AGTTCC TGGTCAAGGCTCATCTGAAGATGACCTGCAGGAAGAGGAACAAATTGAGCAGGC 1440

FIG.2D

CATCAAAGAGCATTTGAATCAAGGCAGCTCTCAGGAGACTGACAAGCTGGCCCCGGTGAG 1500

CAAAAGGTTCCCTGTGGGGCCCCGAAGAAATGATGATACCCCAAATAGGCAGTACTGGGA 1560

TGAAGATCTGTTAATGAAAGTGCTGGAATACCTCAATCAAGAAAAGCAGAAAAGGGAAG 1620

GGAGCATATTGCTAAGAGAGCAATGGAAAATATGTAAGCTGCTTTCATTAAATTACCCCTAC 1680

TTTTCATTCCCTCCCAACCCCAAGCAAATCCCAACATTTCTCTTCAGTGTGTGACTTCTATC 1740

CTGTTAACACTGTAATATCTTTAAATGATGTACAGGCAGATGAAACCAGGTCACTGGGGA 1800

GTCTGCTTCATTTCCCTCTGAGCTGTTATCTTGTGTATGGATATGTGTAAATGTTATGACT 1860

CCTTGATAAAAAATTTATTATGTCCATTATTCAAGAAAGATATCTATGACTGTGTTTAAT 1920

FIG.2E

AGTATATCTAATGGCTGTGGCATTGTTGATGCTCACATATGATAAAAAGTGTCCTATAA 1980

TTCTATTGAAAGTTTTTAATATTTATTTGAATTATTTTGTTACTGCTGTAGCGTTTGTG 2040

GAGTACTGGACCAAAAAATAAAGCATTTATAAATATA 2077

FIG.3A

CGGGAGGAATATGCTGTGGAGCTCCTCTGCCATATAACAAGAGGAAATCTTTCAA 60

 ACATGGCTGAAGCAAGACCCACTGGCTTGGAGCAGCCCTGTCTCTTATCCCTTTAATT 120
 M A E A K T H W L G A A L S L I P L I F 20
 TCCTCATCTCTGGGCTGAAGCAGCTTCATTTCAGAGAAACCAGCTGCTTCAGAAAGAAC 180
 L I S G A E A A S F Q R N Q L L Q K E P 40
 CAGACCTCAGGTTGGAAAATGTCCAAAAGTTTCCAGTCCTGAAATGATCAGGGCTTTGG 240
 D L R L E N V Q K F P S P E M I R A L E 60
 AGTACATAGAAACCTCCGACAACAAGCTCATAAGGAAGAAAGCAGCCAGATTATAATC 300
 Y I E N L R Q Q A H K E E S S P D Y N P 80
 CCTACCAAGGTGTCTGTCTCCCCCTTCAGCAAAAAGAAAATGGCGATGAAAGCCACTTGC 360
 Y Q G V S V P L Q Q K E N G D E S H L P 100
 CCGAGAGGATTCACTGAGTGAAGAAGACTGGATGAGAATAATACTCGAAGCTTTGAGAC 420
 E R D S L S E E D W M R I I L E A L R Q 120
 AGGCTGAAAATGAGCCTCAGTCTGCACCACCAAGAAAATAAGCCCTATGCCTTGAATTGAG 480
 A E N E P Q S A P K E N K P Y A L N S E 140

FIG.3B

AAAAGAACTTCCAAATGGACATGAGTGATGATTATGAGACACAGCAGTGGCCAGAAAGAA 540
 K N F P M D M S D D Y E T Q Q W P E R K 160
 AGCTTAAGCACATGCAATTCCCTCCTATGTATGAAGAGAAATCCAGGGATAACCCCTTTA 600
 L K H M Q F P P M Y E E N S R D N P F K 180
 AACGCACAAATGAAATAGTGGAGGAACAATATACTCCTCAAAGCCTTGCTACATTGGAAT 660
 R T N E I V E E Q Y T P Q S L A T L E S 200
 CTGTCTTCCAAGAGCTGGGGAAACTGACAGGACCAACAACCAAGAACTGAGAGGATGG 720
 V F Q E L G K L T G P N N Q K R E R M D 220
 ATGAGGAGCAAAAACCTTATACGGATGATGAAGATGATATCTACAAGGCTAATAACATTG 780
 E E Q K L Y T D D E D D I Y K A N N I A 240
 CCTATGAAGATGTGGTCGGGGAGAAAGACTGGAAACCCAGTAGAGGAGAAAATAGAGAGTC 840
 Y E D V V G G E D W N P V E E K I E S Q 260
 AAACCCAGGAAGAGGTGAGAGACAGCAAGAGAGAAATATAGGAAAAAATGAACAAATCAACG 900
 T Q E E V R D S K E N I G K N E Q I N D 280
 ATGAGATGAAACGCTCAGGGCAGCTTGGCATCCAGGAAGAAGATCTTCGGAAAGAGAGTA 960
 E M K R S G Q L G I Q E E D L R K E S K 300

FIG.3C

AAGACCAACTCTCAGATGATGTCTCCAAAGTAATTGCCTATTTGAAAAGGTTAGTAAATG 1020
 D Q L S D D V S K V I A Y L K R L V N A 320
 CTGCAGGAAGTGGGAGGTTACAGAAATGGGCAAAATGGGAAAGGCCACCAGGCTTTTGG 1080
 A G S G R L Q N G Q N G E R A T R L F E 340
 AGAAACCTCTTGATTCTCAGTCTATTATCAGCTGATTGAAATCTCAAGGAATTACAGA 1140
 K P L D S Q S I Y Q L I E I S R N L Q I 360
 TACCCCGAAGACTTAATTGAGATGCTCAAAACTGGGAGAAGCCGAATGGATCAGTGG 1200
 P P E D L I E M L K T G E K P N G S V E 380
 AACCGGAGCGGAGCTTGACCTTCCTGTTGACCTAGATGACATCTCAGAGGCTGACTTAG 1260
 P E R E L D L P V D L D D I S E A D L D 400
 ACCATCCAGACCTGTTCCAAAATAGGATGCTCTCCAAGAGTGGCTACCCCTAAACACCTG 1320
 H P D L F Q N R M L S K S G Y P K T P G 420
 GTCGTGCTGGGACTGAGGCCCTACCAGACGGGCTCAGTGTGAGGATATTTTAAATCTTT 1380
 R A G T E A L P D G L S V E D I L N L L 440
 TAGGGATGGAGAGTGCAGCAAAATCAGAAAACGTCGTATTTCCCAAGCAAAATCCCAACAT 1440
 G M E S A A N Q K T S Y F P K Q I P T F 460

FIG.3D

TTCTCTTCAGTGTGTGACTTCTATCCTGTTAACACTGTAATATCTTTAAATGATGTACA 1500

L F S V L T S I L L T L * 472

GGCAGATGAAACCAGGTCACCTGGGAGTCTGCTTCATTTCCCTCGAGCTGTTATCTTGTG 1560

TATGGATATGTGTAAATGTTATGACTCCTTGATAAAATAATTATTATGTCCATTATTCAA 1620

GAAAGATATCTATGACTGTGTTTAATAGTATATCTAATGGCTGTGGCATTTGTTGATGCTC 1680

ACATATGATAAAAGTGTCCATAATTCTATTGAAAGTTTTTAATATTATTGAATTAT 1740

TTTGTTACTGTCTGTAGCGTTTTTGTGGAGTACTGGACCAAAATAAAGCATTTATAAAT 1800

ATA

1803

FIG.4A

1 60
SGIIV1 CGGGAGGGAATATGC TGTGGAGCTCCTCTG CCATATAAACAAAAA GAGGAAATCTTTCAA
SGIIV2 CGGGAGGGAATATGC TGTGGAGCTCCTCTG CCATATAAACAAAAA GAGGAAATCTTTCAA
SGIIV3 CGGGAGGGAATATGC TGTGGAGCTCCTCTG CCATATAAACAAAAA GAGGAAATCTTTCAA
SGII CGGGAGGGAATATGC TGTGGAGCTCCTCTG CCATATAAACAAAAA GAGGAAATCTTTCAA

61 120
SGIIV1 ACATGGCTGAAGCAA AGACCCACTGGCTTG GAGCAGCCCTGTCTC TTATCCCCTTTAATTT
SGIIV2 ACATGGCTGAAGCAA AGACCCACTGGCTTG GAGCAGCCCTGTCTC TTATCCCCTTTAATTT
SGIIV3 ACATGGCTGAAGCAA AGACCCACTGGCTTG GAGCAGCCCTGTCTC TTATCCCCTTTAATTT
SGII ACATGGCTGAAGCAA AGACCCACTGGCTTG GAGCAGCCCTGTCTC TTATCCCCTTTAATTT

FIG.4B

| | | |
|--------|---|-----|
| | 121 | 180 |
| SGIIV1 | TCCTCATCTCTGGGG CTGAAGCAGCTTCAT TTCAGAGAAACCAGC TGCTTCAGAAAGAAC | |
| SGIIV2 | TCCTCATCTCTGGGG CTGAAGCAGCTTCAT TTCAGAGAAACCAGC TGCTTCAGAAAGAAC | |
| SGIIV3 | TCCTCATCTCTGGGG CTGAAGCAGCTTCAT TTCAGAGAAACCAGC TGCTTCAGAAAGAAC | |
| SGII | TCCTCATCTCTGGGG CTGAAGCAGCTTCAT TTCAGAGAAACCAGC TGCTTCAGAAAGAAC | |
| | 181 | 240 |
| SGIIV1 | CAGACCTCAGGTTGG AAAATGTCCAAAAGT TTCCCAGTCCTGAAA TGATCAGGGCTTTGG | |
| SGIIV2 | CAGACCTCAGGTTGG AAAATGTCCAAAAGT TTCCCAGTCCTGAAA TGATCAGGGCTTTGG | |
| SGIIV3 | CAGACCTCAGGTTGG AAAATGTCCAAAAGT TTCCCAGTCCTGAAA TGATCAGGGCTTTGG | |
| SGII | CAGACCTCAGGTTGG AAAATGTCCAAAAGT TTCCCAGTCCTGAAA TGATCAGGGCTTTGG | |

FIG.4C

| | | |
|--------|-----------------|---|
| | 241 | 300 |
| SGIIV1 | AGTACATAGAAAACC | ----- |
| SGIIV2 | AGTACATAGAAAACC | TCCGACAACAAGCTC ATAAG----- |
| SGIIV3 | AGTACATAGAAAACC | TCCGACAACAAGCTC ATAAGGAAGAAAGCA GCCCAGATTATAATC |
| SGII | AGTACATAGAAAACC | TCCGACAACAAGCTC ATAAGGAAGAAAGCA GCCCAGATTATAATC |
| | 301 | 360 |
| SGIIV1 | ----- | ----- |
| SGIIV2 | ----- | ----- |
| SGIIV3 | CCTACCAAGGTGTCT | CTGTCCCCCTTCAGC AAAAAGAAAATGGCG ATGAAAGCCACTTGC |
| SGII | CCTACCAAGGTGTCT | CTGTCCCCCTTCAGC AAAAAGAAAATGGCG ATGAAAGCCACTTGC |

FIG.4D

| | | |
|--------|---|-------|
| | 361 | 420 |
| SGIIV1 | ----- | ----- |
| SGIIV2 | ----- | ----- |
| SGIIV3 | CCGAGAGGGATTAC TGAGTGAAGAAGACT GGATGAGAATAATAC TCGAAGCTTTGAGAC | |
| SGII | CCGAGAGGGATTAC TGAGTGAAGAAGACT GGATGAGAATAATAC TCGAAGCTTTGAGAC | |
| | 421 | 480 |
| SGIIV1 | ----- | ----- |
| SGIIV2 | ----- | ----- |
| SGIIV3 | AGGCTGAAAATGAGC CTCAGTCTGCACCAA AAGAAAATAAGCCCT ATGCCTTGAATTCAG | |
| SGII | AGGCTGAAAATGAGC CTCAGTCTGCACCAA AAGAAAATAAGCCCT ATGCCTTGAATTCAG | |

FIG.4E

| | | |
|--------|---|-----|
| SGIIV1 | ----- | 540 |
| SGIIV2 | -----AAAGAA | |
| SGIIV3 | AAAAGAACTTTCCAA TGGACATGAGTGATG ATTATGAGACACAGC AGTGGCCAGAAAGAA | |
| SGII | AAAAGAACTTTCCAA TGGACATGAGTGATG ATTATGAGACACAGC AGTGGCCAGAAAGAA | |
| SGIIV1 | ----- | 600 |
| SGIIV2 | AGCTTAAGCACATGC AATCCCTCCTATGT ATGAAGAGAATTCCA GGGATAACCCCTTTA | |
| SGIIV3 | AGCTTAAGCACATGC AATCCCTCCTATGT ATGAAGAGAATTCCA GGGATAACCCCTTTA | |
| SGII | AGCTTAAGCACATGC AATCCCTCCTATGT ATGAAGAGAATTCCA GGGATAACCCCTTTA | |

FIG.4F

660

601

SGIIV1 AACGCACAAATGAAA TAGTGGAGGAACAAT ATACTCCTCAAAGCC TTGCTACATTGGAAT
SGIIV2 AACGCACAAATGAAA TAGTGGAGGAACAAT ATACTCCTCAAAGCC TTGCTACATTGGAAT
SGIIV3 AACGCACAAATGAAA TAGTGGAGGAACAAT ATACTCCTCAAAGCC TTGCTACATTGGAAT
SGII AACGCACAAATGAAA TAGTGGAGGAACAAT ATACTCCTCAAAGCC TTGCTACATTGGAAT

720

661

SGIIV1 CTGTCTTCCAAGAGC TGGGAAACTGACAG GACCAAAACAACCAGA AACGTGAGAGGATGG
SGIIV2 CTGTCTTCCAAGAGC TGGGAAACTGACAG GACCAAAACAACCAGA AACGTGAGAGGATGG
SGIIV3 CTGTCTTCCAAGAGC TGGGAAACTGACAG GACCAAAACAACCAGA AACGTGAGAGGATGG
SGII CTGTCTTCCAAGAGC TGGGAAACTGACAG GACCAAAACAACCAGA AACGTGAGAGGATGG

FIG.4G

721
SGIIV1 ATGAGGAGCAAAAAC TTTATACGGATGATG AAGATGATATCTACA AGGCTAATAACATTG
SGIIV2 ATGAGGAGCAAAAAC TTTATACGGATGATG AAGATGATATCTACA AGGCTAATAACATTG
SGIIV3 ATGAGGAGCAAAAAC TTTATACGGATGATG AAGATGATATCTACA AGGCTAATAACATTG
SGII ATGAGGAGCAAAAAC TTTATACGGATGATG AAGATGATATCTACA AGGCTAATAACATTG

781
SGIIV1 CCTATGAAGATGTGG TCGGGGGAGAAAGACT GGAACCCAGTAGAGG AGAAAATAGAGAGTC
SGIIV2 CCTATGAAGATGTGG TCGGGGGAGAAAGACT GGAACCCAGTAGAGG AGAAAATAGAGAGTC
SGIIV3 CCTATGAAGATGTGG TCGGGGGAGAAAGACT GGAACCCAGTAGAGG AGAAAATAGAGAGTC
SGII CCTATGAAGATGTGG TCGGGGGAGAAAGACT GGAACCCAGTAGAGG AGAAAATAGAGAGTC

840

FIG.4H

841
SGIIV1 AAACCCAGGAAGAGG TGAGAGACAGCAAAG AGAATATAGGAAAAA ATGAACAAATCAACG 900
SGIIV2 AAACCCAGGAAGAGG TGAGAGACAGCAAAG AGAATATAGGAAAAA ATGAACAAATCAACG
SGIIV3 AAACCCAGGAAGAGG TGAGAGACAGCAAAG AGAATATAGGAAAAA ATGAACAAATCAACG
SGII AAACCCAGGAAGAGG TGAGAGACAGCAAAG AGAATATAGGAAAAA ATGAACAAATCAACG

901
SGIIV1 ATGAGATGAAACGCT CAGGGCAGCTTGGCA TCCAGGAAGAAGATC TTCGGAAAGAGAGTA
SGIIV2 ATGAGATGAAACGCT CAGGGCAGCTTGGCA TCCAGGAAGAAGATC TTCGGAAAGAGAGTA
SGIIV3 ATGAGATGAAACGCT CAGGGCAGCTTGGCA TCCAGGAAGAAGATC TTCGGAAAGAGAGTA
SGII ATGAGATGAAACGCT CAGGGCAGCTTGGCA TCCAGGAAGAAGATC TTCGGAAAGAGAGTA

FIG.4I

961
SGIIV1 AAGACCAACTCTCAG ATGATGTCTCTCCAAAG TAAATTGCCCTATTGA AAAGGTTAGTAAATG
SGIIV2 AAGACCAACTCTCAG ATGATGTCTCTCCAAAG TAAATTGCCCTATTGA AAAGGTTAGTAAATG
SGIIV3 AAGACCAACTCTCAG ATGATGTCTCTCCAAAG TAAATTGCCCTATTGA AAAGGTTAGTAAATG
SGII AAGACCAACTCTCAG ATGATGTCTCTCCAAAG TAAATTGCCCTATTGA AAAGGTTAGTAAATG

1020
SGIIV1 CTGCAGGAAGTGGGA GGTTACAGAATGGGC AAAATGGGGAAGGG CCACCAGGCTTTTGG
SGIIV2 CTGCAGGAAGTGGGA GGTTACAGAATGGGC AAAATGGGGAAGGG CCACCAGGCTTTTGG
SGIIV3 CTGCAGGAAGTGGGA GGTTACAGAATGGGC AAAATGGGGAAGGG CCACCAGGCTTTTGG
SGII CTGCAGGAAGTGGGA GGTTACAGAATGGGC AAAATGGGGAAGGG CCACCAGGCTTTTGG

1021

FIG.4J

1081
SGIIV1 AGAAACCTCTTGATT CTCAGTCTATTTATC AGCTGATTGAAATCT CAAGGAATTTACAGA 1140
SGIIV2 AGAAACCTCTTGATT CTCAGTCTATTTATC AGCTGATTGAAATCT CAAGGAATTTACAGA
SGIIV3 AGAAACCTCTTGATT CTCAGTCTATTTATC AGCTGATTGAAATCT CAAGGAATTTACAGA
SGII AGAAACCTCTTGATT CTCAGTCTATTTATC AGCTGATTGAAATCT CAAGGAATTTACAGA

1141
SGIIV1 TACCCCCAGAAGACT TAATTGAGATGCTCA AAAC TGGGGAGAAGC CGAATGGATCAGTGG 1200
SGIIV2 TACCCCCAGAAGACT TAATTGAGATGCTCA AAAC TGGGGAGAAGC CGAATGGATCAGTGG
SGIIV3 TACCCCCAGAAGACT TAATTGAGATGCTCA AAAC TGGGGAGAAGC CGAATGGATCAGTGG
SGII TACCCCCAGAAGACT TAATTGAGATGCTCA AAAC TGGGGAGAAGC CGAATGGATCAGTGG

FIG.4K

1201
SGIIV1 AACCGGAGCGGGAGC TTGACCTTCCTGTTG ACCTAGATGACATCT CAGAGGCTGACTTAG
SGIIV2 AACCGGAGCGGGAGC TTGACCTTCCTGTTG ACCTAGATGACATCT CAGAGGCTGACTTAG
SGIIV3 AACCGGAGCGGGAGC TTGACCTTCCTGTTG ACCTAGATGACATCT CAGAGGCTGACTTAG
SGII AACCGGAGCGGGAGC TTGACCTTCCTGTTG ACCTAGATGACATCT CAGAGGCTGACTTAG

1261
SGIIV1 ACCATCCAGACCTGT TCCAAAATAGGATGC TCTCCAAGAGTGGCT ACCCTAAAACACCTG
SGIIV2 ACCATCCAGACCTGT TCCAAAATAGGATGC TCTCCAAGAGTGGCT ACCCTAAAACACCTG
SGIIV3 ACCATCCAGACCTGT TCCAAAATAGGATGC TCTCCAAGAGTGGCT ACCCTAAAACACCTG
SGII ACCATCCAGACCTGT TCCAAAATAGGATGC TCTCCAAGAGTGGCT ACCCTAAAACACCTG

FIG.4L

1321 1380
SGIIV1 GTCGTGCTGGGACTG AGGCCCTACCAGACG GGCTCAGTGTGAGG ATATTTTAAATCTTT
SGIIV2 GTCGTGCTGGGACTG AGGCCCTACCAGACG GGCTCAGTGTGAGG ATATTTTAAATCTTT
SGIIV3 GTCGTGCTGGGACTG AGGCCCTACCAGACG GGCTCAGTGTGAGG ATATTTTAAATCTTT
SGII GTCGTGCTGGGACTG AGGCCCTACCAGACG GGCTCAGTGTGAGG ATATTTTAAATCTTT

1381 1440
SGIIV1 TAGGGATGGAGAGTG CAGCAAATCAGAAAA CGTCGTATTTTCCCA ATCCATATAACCAGG
SGIIV2 TAGGGATGGAGAGTG CAGCAAATCAGAAAA CGTCGTATTTTCCCA ATCCATATAACCAGG
SGIIV3 TAGGGATGGAGAGTG CAGCAAATCAGAAAA CGTCGTATTTTCCCA A-----
SGII TAGGGATGGAGAGTG CAGCAAATCAGAAAA CGTCGTATTTTCCCA ATCCATATAACCAGG

FIG.4M

| | | |
|--------|--|-------|
| | 1441 | 1500 |
| SGIIV1 | AGAAAGTTCTGCCAA GGCTCCCTTATGGTG CTGGAAGATCTAGAT CGAACCAGCTTCCCA | |
| SGIIV2 | AGAAAGTTCTGCCAA GGCTCCCTTATGGTG CTGGAAGATCTAGAT CGAACCAGCTTCCCA | |
| SGIIV3 | ----- | ----- |
| SGII | AGAAAGTTCTGCCAA GGCTCCCTTATGGTG CTGGAAGATCTAGAT CGAACCAGCTTCCCA | |
| | 1501 | 1560 |
| SGIIV1 | AAGCTGCCCTGGATTC CACATGTTGAAAACA GACAGATGGCATATG AAAACCTGAACGACA | |
| SGIIV2 | AAGCTGCCCTGGATTC CACATGTTGAAAACA GACAGATGGCATATG AAAACCTGAACGACA | |
| SGIIV3 | ----- | ----- |
| SGII | AAGCTGCCCTGGATTC CACATGTTGAAAACA GACAGATGGCATATG AAAACCTGAACGACA | |

FIG.4N

1620

1561

SGIIV1 AGGATCAAGAATTAG GTGAGTACTTGGCCA GGATGCTAGTTAAAT ACCCTGAGATCATTA
SGIIV2 AGGATCAAGAATTAG GTGAGTACTTGGCCA GGATGCTAGTTAAAT ACCCTGAGATCATTA
SGIIV3 -----
SGII AGGATCAAGAATTAG GTGAGTACTTGGCCA GGATGCTAGTTAAAT ACCCTGAGATCATTA

1680

1621

SGIIV1 ATTCAAACCAAGTGA AGCGAGTTCCTGGTC AAGGCTCATCTGAAG ATGACCTGCAGGAAG
SGIIV2 ATTCAAACCAAGTGA AGCGAGTTCCTGGTC AAGGCTCATCTGAAG ATGACCTGCAGGAAG
SGIIV3 -----
SGII ATTCAAACCAAGTGA AGCGAGTTCCTGGTC AAGGCTCATCTGAAG ATGACCTGCAGGAAG

FIG.40

| | | | |
|--------|-----------------|-----------------|---------------------------------|
| | 1681 | | 1740 |
| SGIIV1 | AGGAACAAATTGAGC | AGGCCATCAAAGAGC | ATTGGAATCAAGGCA GCTCTCAGGAGACTG |
| SGIIV2 | AGGAACAAATTGAGC | AGGCCATCAAAGAGC | ATTGGAATCAAGGCA GCTCTCAGGAGACTG |
| SGIIV3 | ----- | ----- | ----- |
| SGII | AGGAACAAATTGAGC | AGGCCATCAAAGAGC | ATTGGAATCAAGGCA GCTCTCAGGAGACTG |
| | 1741 | | 1800 |
| SGIIV1 | ACAAGCTGGCCCCGG | TGAGCAAAAGGTTCC | CTGTGGGGCCCCCGA AGAATGATGATACCC |
| SGIIV2 | ACAAGCTGGCCCCGG | TGAGCAAAAGGTTCC | CTGTGGGGCCCCCGA AGAATGATGATACCC |
| SGIIV3 | ----- | ----- | ----- |
| SGII | ACAAGCTGGCCCCGG | TGAGCAAAAGGTTCC | CTGTGGGGCCCCCGA AGAATGATGATACCC |

FIG.4P

1801
SGIIV1 CAAATAGGCAGTACT GGGATGAAGATCTGT TAATGAAAGTGCTGG AATACCTCAATCAAG
SGIIV2 CAAATAGGCAGTACT GGGATGAAGATCTGT TAATGAAAGTGCTGG AATACCTCAATCAAG
SGIIV3 -----
SGII CAAATAGGCAGTACT GGGATGAAGATCTGT TAATGAAAGTGCTGG AATACCTCAATCAAG

1861
SGIIV1 AAAAGGCAGAAAAGG GAAGGGAGCATATTG CTAAGAGAGCAATGG AAAATATGTAAGCTG
SGIIV2 AAAAGGCAGAAAAGG GAAGGGAGCATATTG CTAAGAGAGCAATGG AAAATATGTAAGCTG
SGIIV3 -----
SGII AAAAGGCAGAAAAGG GAAGGGAGCATATTG CTAAGAGAGCAATGG AAAATATGTAAGCTG

1920

FIG.4Q

| | |
|--------|---|
| | 1980 |
| SGIIV1 | CTTTCATTAAATTACC CTACTTTCATTCCCTC CCACCCCAAGCAAAT CCCAACATTTCTCTT |
| SGIIV2 | CTTTCATTAAATTACC CTACTTTCATTCCCTC CCACCCCAAGCAAAT CCCAACATTTCTCTT |
| SGIIV3 | -----GCAAAT CCCAACATTTCTCTT |
| SGII | CTTTCATTAAATTACC CTACTTTCATTCCCTC CCACCCCAAGCAAAT CCCAACATTTCTCTT |
| | 2040 |
| SGIIV1 | CAGTGTGTTGACTTC TATCCTGTTAAACACT GTAATATCTTTAAAT GATGTACAGGCAGAT |
| SGIIV2 | CAGTGTGTTGACTTC TATCCTGTTAAACACT GTAATATCTTTAAAT GATGTACAGGCAGAT |
| SGIIV3 | CAGTGTGTTGACTTC TATCCTGTTAAACACT GTAATATCTTTAAAT GATGTACAGGCAGAT |
| SGII | CAGTGTGTTGACTTC TATCCTGTTAAACACT GTAATATCTTTAAAT GATGTACAGGCAGAT |

FIG.4R

2041 2100
SGIIV1 GAAACCAGGTCAC TG GGGAGTCTGCTTCAT TTCCTCTGAGCTGTT ATCTTGTGTATGGAT
SGIIV2 GAAACCAGGTCAC TG GGGAGTCTGCTTCAT TTCCTCTGAGCTGTT ATCTTGTGTATGGAT
SGIIV3 GAAACCAGGTCAC TG GGGAGTCTGCTTCAT TTCCTCTGAGCTGTT ATCTTGTGTATGGAT
SGII GAAACCAGGTCAC TG GGGAGTCTGCTTCAT TTCCTCTGAGCTGTT ATCTTGTGTATGGAT

2100 2160
SGIIV1 ATGTGTAAATGTTAT GACTCCTTGATAAAA AATTATTATGTCCA TTATTCAAGAAAGAT
SGIIV2 ATGTGTAAATGTTAT GACTCCTTGATAAAA AATTATTATGTCCA TTATTCAAGAAAGAT
SGIIV3 ATGTGTAAATGTTAT GACTCCTTGATAAAA AATTATTATGTCCA TTATTCAAGAAAGAT
SGII ATGTGTAAATGTTAT GACTCCTTGATAAAA AATTATTATGTCCA TTATTCAAGAAAGAT

FIG.4S

2161 2220
SGIIV1 ATCTATGACTGTGTT TAAAGTATATCTAA TGGCTGTGGCATTGT TGATGCTCACATATG
SGIIV2 ATCTATGACTGTGTT TAAAGTATATCTAA TGGCTGTGGCATTGT TGATGCTCACATATG
SGIIV3 ATCTATGACTGTGTT TAAAGTATATCTAA TGGCTGTGGCATTGT TGATGCTCACATATG
SGII ATCTATGACTGTGTT TAAAGTATATCTAA TGGCTGTGGCATTGT TGATGCTCACATATG

2221 2280
SGIIV1 ATAAAAAAGTGCCT ATAATTCTATTGAAA GTTTTAAATATTAT TGAATTATTTTGTTA
SGIIV2 ATAAAAAAGTGCCT ATAATTCTATTGAAA GTTTTAAATATTAT TGAATTATTTTGTTA
SGIIV3 ATAAAAAAGTGCCT ATAATTCTATTGAAA GTTTTAAATATTAT TGAATTATTTTGTTA
SGII ATAAAAAAGTGCCT ATAATTCTATTGAAA GTTTTAAATATTAT TGAATTATTTTGTTA

FIG.4T

2281

SGIIV3 CTGTCCTGTAGCGTTT TGTGGAGTACTGGAC CAAAAAATAAAGCA TTATAAATATA 1997
SGIIV1 CTGTCCTGTAGCGTTT TGTGGAGTACTGGAC CAAAAAATAAAGCA TTATAAATATA 2077
SGIIV2 CTGTCCTGTAGCGTTT TGTGGAGTACTGGAC CAAAAAATAAAGCA TTATAAATATA 1803
SGII CTGTCCTGTAGCGTTT TGTGGAGTACTGGAC CAAAAAATAAAGCA TTATAAATATA 2336

FIG.5B

121 180
SGIIV1 -----PFK
SGIIV2 -----

SGIIV3 AENEPQAPKENKPY ALNSEKNFPMDSDD YETQQWPERKLKHMQ FPPMYEENS RDNPFFK
SGII AENEPQAPKENKPY ALNSEKNFPMDSDD YETQQWPERKLKHMQ FPPMYEENS RDNPFFK

181 240

SGIIV1 RTNEIVEEQYTPQSL ATLESVFQELGKLTG PNNQKRERMDEEQKL YTDDDDIYKANNIA
SGIIV2 -----

SGIIV3 RTNEIVEEQYTPQSL ATLESVFQELGKLTG PNNQKRERMDEEQKL YTDDDDIYKANNIA
SGII RTNEIVEEQYTPQSL ATLESVFQELGKLTG PNNQKRERMDEEQKL YTDDDDIYKANNIA

FIG.5C

| | | | | | |
|--------|-----------------|-----------------|-----------------|-----------------|-----|
| SGIIV1 | YEDVVGEDWNPVEE | KIESQTQEEVRDSKE | NIGKNEQINDEMCRS | GQLGIQEEDLRKESK | 300 |
| SGIIV2 | ----- | ----- | ----- | ----- | |
| SGIIV3 | YEDVVGEDWNPVEE | KIESQTQEEVRDSKE | NIGKNEQINDEMCRS | GQLGIQEEDLRKESK | |
| SGII | YEDVVGEDWNPVEE | KIESQTQEEVRDSKE | NIGKNEQINDEMCRS | GQLGIQEEDLRKESK | |
| SGIIV1 | DQLSDDVSKVIAYLK | RLVNAAGSRLQNGQ | NGERATRLFEKPLDS | QSIYQLIEISRNLQI | 360 |
| SGIIV2 | ----- | ----- | ----- | ----- | |
| SGIIV3 | DQLSDDVSKVIAYLK | RLVNAAGSRLQNGQ | NGERATRLFEKPLDS | QSIYQLIEISRNLQI | |
| SGII | DQLSDDVSKVIAYLK | RLVNAAGSRLQNGQ | NGERATRLFEKPLDS | QSIYQLIEISRNLQI | |

FIG.5D

| | | | | |
|--------|----------------|-----------------|-----------------|-----------------|
| | | | | 420 |
| SGIIV1 | PPEDLIEMLKTEKP | NGSVEPERELDLPVD | LDDISEADLDHPDLF | QNRMLSKSGYPKTPG |
| SGIIV2 | ----- | ----- | ----- | ----- |
| SGIIV3 | PPEDLIEMLKTEKP | NGSVEPERELDLPVD | LDDISEADLDHPDLF | QNRMLSKSGYPKTPG |
| SGII | PPEDLIEMLKTEKP | NGSVEPERELDLPVD | LDDISEADLDHPDLF | QNRMLSKSGYPKTPG |
| | | | | |
| | | | | 480 |
| SGIIV1 | RAGTEALPDGLSVD | ILNLLGMESAANQKT | SYFPNPYNQEKVLPR | LPYGAGRSRSNQLPK |
| SGIIV2 | ----- | ----- | ----- | ----- |
| SGIIV3 | RAGTEALPDGLSVD | ILNLLGMESAANQKT | SYFP----- | ----- |
| SGII | RAGTEALPDGLSVD | ILNLLGMESAANQKT | SYFPNPYNQEKVLPR | LPYGAGRSRSNQLPK |

FIG.5E

| | |
|--|-----|
| 481 | 540 |
| SGIIV1 AAWIPHVENRQMAYE NLNDKDQELGEYLAR MLVKYPEIINSNQVK RVPQGGSSEDDLQEE | |
| SGIIV2 ----- | |
| SGIIV3 ----- | |
| SGII AAWIPHVENRQMAYE NLNDKDQELGEYLAR MLVKYPEIINSNQVK RVPQGGSSEDDLQEE | |
| 541 | 600 |
| SGIIV1 EQIEQAIKEHLNQGS SQETDKLAPVSKRFP VGPPKNDDTPNRQYW DEDLLMKVLEYLNQE | |
| SGIIV2 ----- | |
| SGIIV3 ----- | |
| SGII EQIEQAIKEHLNQGS SQETDKLAPVSKRFP VGPPKNDDTPNRQYW DEDLLMKVLEYLNQE | |

FIG.5F

601
SGIIV1 KAEKGREHIAKRAE NM----- 504
SGIIV2 ----- --KESLSTCNSLLC MKRIPGITPLNAQMK- 98
SGIIV3 ----- --KQIPTFLFSLVTS ILLTL----- 472
SGII KAEKGREHIAKRAE NM----- 617